

Using the goodenuffR package

Everything...in its right place

by Martin Frigaard

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[Created using the "λέξις" theme](#)

goodenuffR = good enuff practices in R computing





Outline

1) The Problem

2) A Solution

3) Installation

4) Quick Start

5) Package functions

- `goodenuff_code()`
- `goodenuff_collab()`
- `goodenuff_data()`
- `goodenuff_doc()`
- `goodenuff_results()`
- `goodenuff_files()`

6) Using `goodenuffR`

The Problem

Where is my stuff?



THE VERGE: FILE NOT FOUND



REPORT

FILE NOT FOUND

A generation that grew up with Google is forcing professors to rethink their lesson plans

By Monica Chin | @mcsquared96 | Sep 22, 2021, 8:00am EDT

Illustrations by Micha Hugen

The Problem



 **Jenny Bryan** ✅ @JennyBryan · 40m ...

Knowing how to store stuff in a particular place, with a intentional name, is SO IMPORTANT

Store stuff in a particular place

The Problem



dan nguyen ✅ @dancow · 2h

omg turns out I wasn't completely bullshitting all the times when I fussed to students that "file not found" would be their most common and soul-destroying "bug" when trying to learn programming

Most soul-destroying "bug" when trying to learn programming

A Solution: goodenuffR!



Based on the excellent paper, *Good enough practices in scientific computing*

by Greg Wilson, Jennifer Bryan, Karen Cranston, Justin Kitzes, Lex Nederbragt, Tracy K. Teal

PLOS COMPUTATIONAL BIOLOGY

OPEN ACCESS

PERSPECTIVE

Good enough practices in scientific computing

Greg Wilson  , Jennifer Bryan , Karen Cranston , Justin Kitzes , Lex Nederbragt , Tracy K. Teal 

Published: June 22, 2017 • <https://doi.org/10.1371/journal.pcbi.1005510>

Article	Authors	Metrics	Comments	Media Coverage
				

A Solution



The paper focuses on...

"a minimum set of tools and techniques that we believe every researcher can and should consider adopting"

Specifically

- Data management
- Software
- Collaboration
- Project organization
- Tracking changes
- Manuscripts

A Solution



goodenuffR focuses on:

- Data management
- Project organization

Specifically

```
-- CITATION  
-- README  
-- LICENSE  
-- requirements.txt  
-- data  
|-- birds_count_table.csv  
-- doc  
|-- notebook.md  
|-- manuscript.md  
|-- changelog.txt  
-- results  
|-- summarized_results.csv  
-- src  
|-- sightings_analysis.py  
|-- runall.py
```

Installation



Available on GitHub here:

<https://github.com/mjfrigaard/goodenuffR>

Install `goodenuffR` using the code below:

```
install.packages("devtools")
devtools::install_github("mjfrigaard/goodenuffR")
```

Quick Start

In a fresh RStudio Session



R version 4.1.1 (2021-08-10) -- "Kick Things"
Copyright (C) 2021 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin17.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

>

Files Plots Packages Help Viewer

Install Update

Name	Description	Version
abind	Combine Multidimensional Arrays	1.4-5
acepack	ACE and AVAS for Selecting Multiple Regression Transformations	1.4.1
anytime	Anything to 'POSIXct' or 'Date' Converter	0.3.9
AppliedPredictiveMo...	Functions and Data Sets for 'Applied Predictive Modeling'	1.1-7
arrow	Integration to 'Apache' Arrow	5.0.0.2
arsenal	An Arsenal of R Functions for Large-Scale Statistical Summaries	3.6.3
ash	David Scott's ASH Routines	1.0-15
AsioHeaders	'Asio' C++ Header Files	1.16.1-1
askpass	Safe Password Entry for R, Git, and SSH	1.1
assertive	Readable Check Functions to Ensure Code Integrity	0.3-6
assertive.base	A Lightweight Core of the 'assertive' Package	0.0-9

Quick Start

1) Install `devtools`,
then install and load
`goodenuffR`



```
Console Terminal Jobs
R 4.1.1 · ~/R/ ↗
> install.packages("devtools")
trying URL 'https://cran.rstudio.com/bin/macosx/contrib/4.1/devtools_2.4.2.tgz'
Content type 'application/x-gzip' length 393913 bytes (384 KB)
=====
downloaded 384 KB

The downloaded binary packages are in
  /var/folders/3p/wzkys03s6p1cvmn8yzm93440000gn/T//Rtmp4rq8qj downloaded_packages
> devtools::install_github("mjfrigaard/goodenuffR")
Using github PAT from envvar GITHUB_PAT
Downloading GitHub repo mjfrigaard/goodenuffR@HEAD
✓  checking for file '/private/var/folders/3p/wzkys03s6p1cvmn8yzm93440000gn/T/Rtmp4rq8qj/remotesf16118ee2b1d/mjfrigaard-goodenuffR-3da8f43/DESCRIPTION' ...
-  preparing 'goodenuffR':
✓  checking DESCRIPTION meta-information ...
-  checking for LF line-endings in source and make files and shell scripts
-  checking for empty or unneeded directories
-  building 'goodenuffR_0.1.0.tar.gz'

* installing *source* package 'goodenuffR' ...
** using staged installation
*** R
*** data
*** moving datasets to lazyload DB
*** inst
** byte-compile and prepare package for lazy loading
*** help
*** installing help indices
** building package indices
** testing if installed package can be loaded from temporary location
** testing if installed package can be loaded from final location
** testing if installed package keeps a record of temporary installation path
* DONE (goodenuffR)
> library(goodenuffR)
```



Quick Start

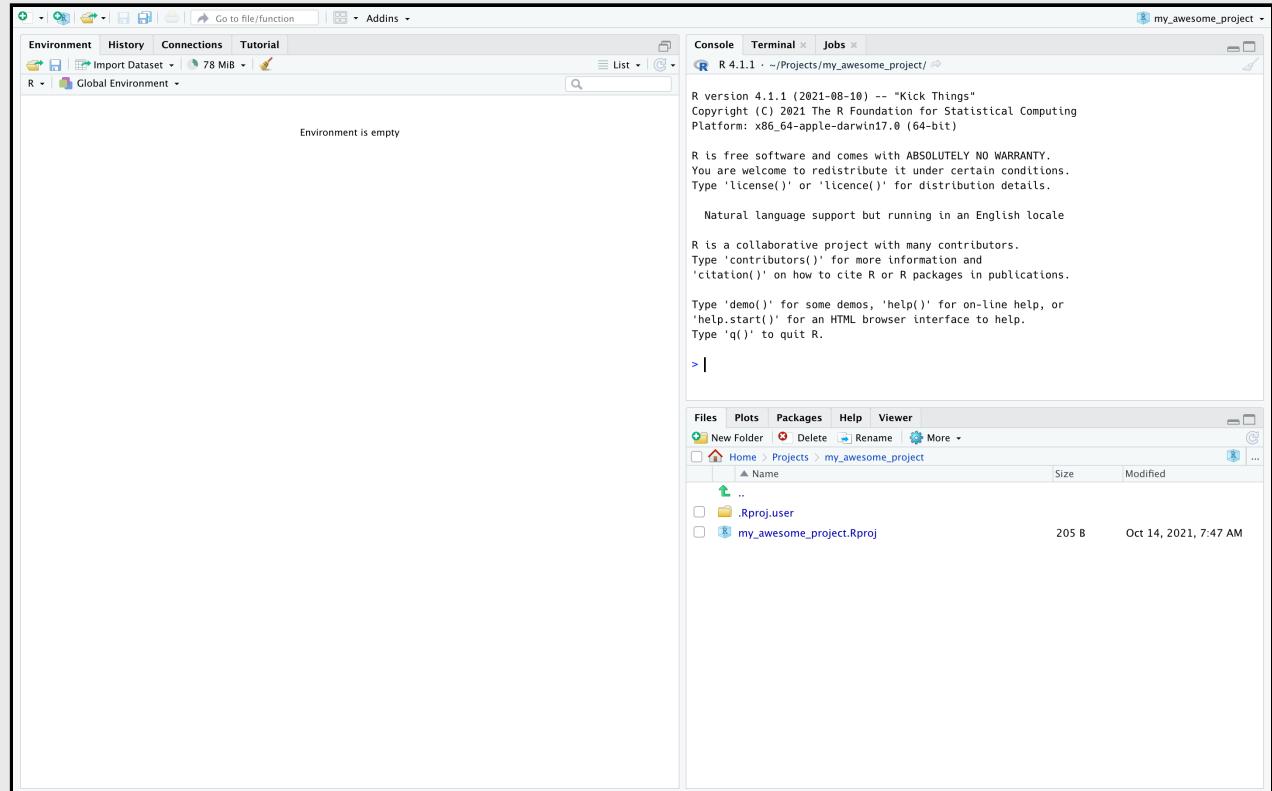
- 2) Enter a project name
- 3) Enter the folder path
for your project

```
goodenuffR::goodenuff_project(  
  project_name = "my awesome project",  
  folder_path = "/Users/mjfrigaard/Projects")
```

TIP: use `getwd()` in the Console or `pwd` in the Terminal to locate current folder

Quick Start

RStudio will open a new session for your project



Quick Start



4) Run

```
goodenuffR::goodenuff_files()
```

```
Console Terminal x Jobs x
R 4.1.1 · ~/Projects/my_awesome_project/ ↗

R version 4.1.1 (2021-08-10) -- "Kick Things"
Copyright (C) 2021 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin17.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
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Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

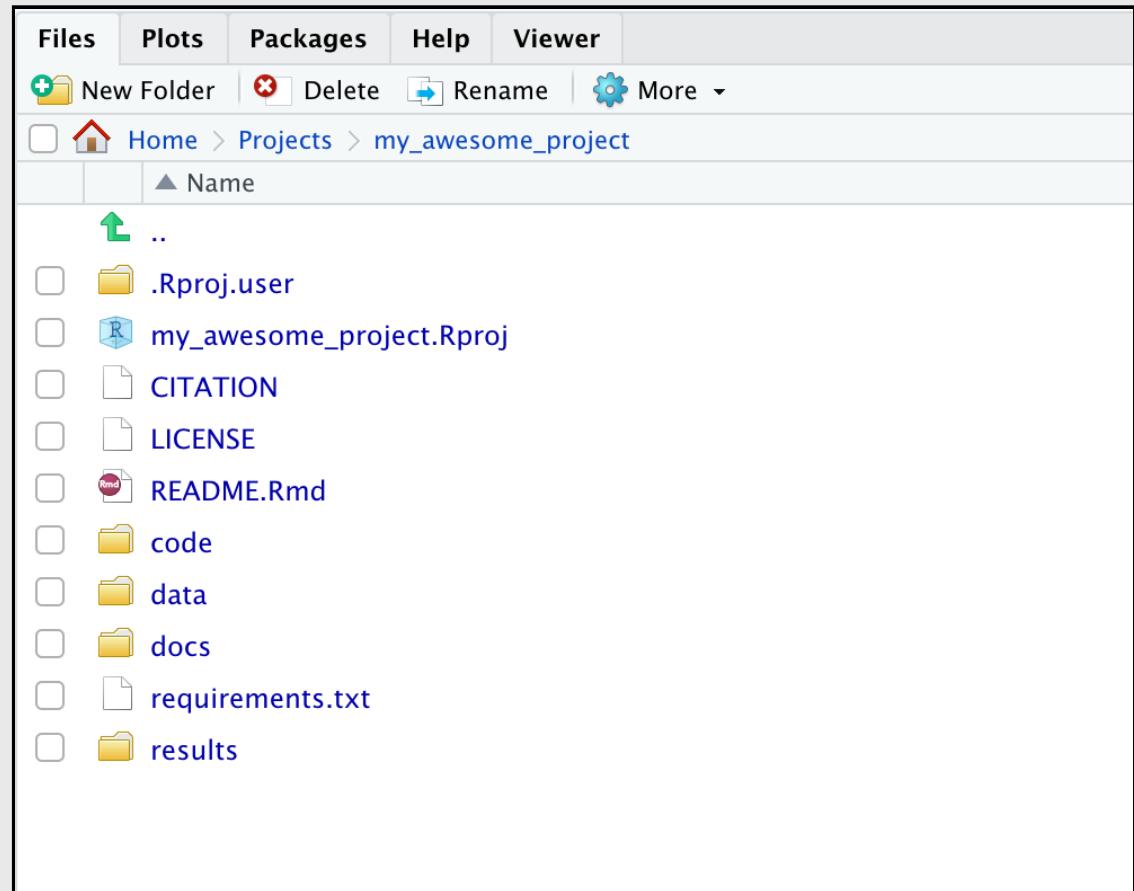
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> goodenuffR::goodenuff_files()
trying URL 'https://creativecommons.org/publicdomain/zero/1.0/legalcode.txt'
downloaded 7048 bytes

trying URL 'https://raw.githubusercontent.com/rstudio/rmarkdown/main/inst/rmarkdown/templates/git_
_document/skeleton/skeleton.Rmd'
Content type 'text/plain; charset=utf-8' length 691 bytes
=====
downloaded 691 bytes
```

Quick Start

Now you're good (enuff)
to go!





Package functions

goodenuff_code()

Paper

- *readable, reusable, and testable*
- *short, single-purpose functions with clearly-defined inputs and outputs*
- *name all files to reflect their content or function*

goodenuffR

```
goodenuffR::goodenuff_code()  
# └── code  
#   ├── 01-import.R  
#   ├── 02-tidy.R  
#   ├── 03-wrangle.R  
#   ├── 04-visualize.R  
#   ├── 05-model.R  
#   ├── 06-communicate.R  
#   └── runall.R
```



Package functions

goodenuff_code()

Paper

- *Place a brief explanatory comment at the start of every program*

goodenuffR

Each `code` file has a header:

```
#=====
# This is code to create:
# Authored by and feedback to:
# MIT License
# Version:
#=====
```



Package functions

goodenuff_collab()

Paper

- *Make the project citable*
- *Make the license explicit*
- *Create an overview of your project*
- *Make dependencies and requirements explicit*

goodenuffR

```
goodenuffR::goodenuff_collab()  
# └─ CITATION  
# └─ LICENSE  
# └─ README.Rmd  
# └─ requirements.txt
```



Package functions

goodenuff_data()

Paper

- *Save the raw data*
- *Record all the steps used to process data*

goodenuffR

```
goodenuffR::goodenuff_data()  
# data  
# └── README.md  
# └── raw
```

Folder for keeping `raw/` data separate from other data files

Document in `README.md`



Package functions

goodenuff_data() (BONUS!)

data/README.md provides some guidance on storing and documenting data.

```
# Project Data  
  
For guidance please see:  
https://help.osf.io/hc/en-us/articles/360019739054-How-to-Make-a-Data-Dictionary  
  
## Additional Resources  
  
1. Sharing data  
http://bit.ly/data-4-sharing  
2. Data in spreadsheets  
http://bit.ly/data-in-sheets  
3. External data (https://r-pkgs.org/)  
https://r-pkgs.org/data.html  
  
source:  
https://swcarpentry.github.io/good-enough-practices-in-scientific-computing/
```



Package functions

goodenuff_doc()

Paper

- *Put text documents associated with the project in the `doc` directory*
- *Add a file called `CHANGELOG.txt` to the project's `docs` subfolder*
- *a running lab notebook describing various ideas for the project and how these were implemented*

goodenuffR

```
goodenuffR::goodenuff_doc()  
# docs  
#   └── changelog.txt  
#   └── manuscript.Rmd  
#       └── notebook.Rmd
```



Package functions

goodenuff_results()

Paper

- *Put raw data and metadata in a `data/` directory and files generated during cleanup and analysis in a `results/` directory*

goodenuffR

```
goodenuffR::goodenuff_results()  
# results  
#   └─ figures  
#   └─ manuscript  
#       └─ tables
```



Package functions

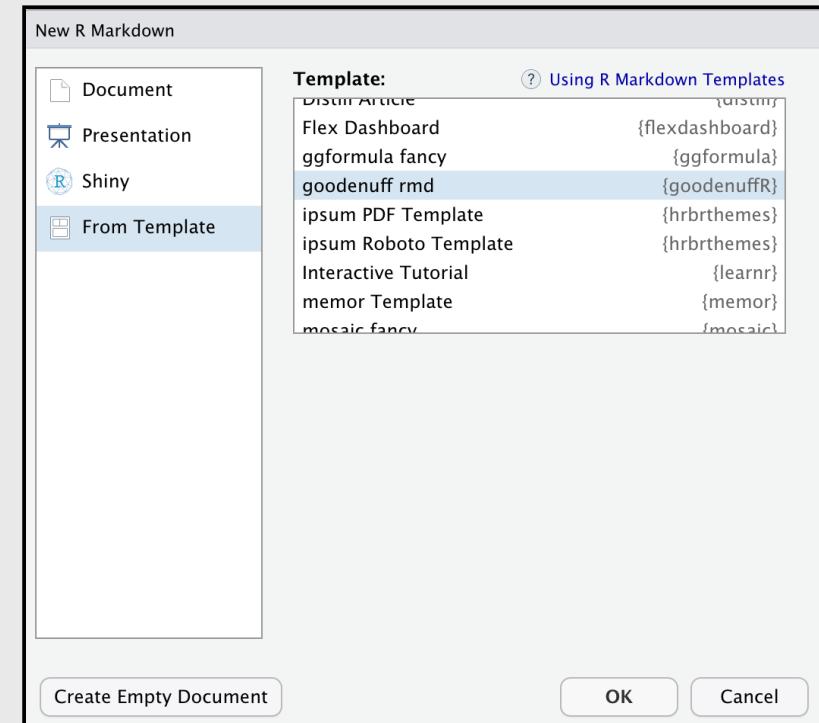
goodenuff_files()

```
goodenuff::goodenuff_files()
├── CITATION
├── LICENSE
├── README.Rmd
└── code
    ├── 01-import.R
    ├── 02-tidy.R
    ├── 03-wrangle.R
    ├── 04-visualize.R
    ├── 05-model.R
    ├── 06-communicate.R
    └── runall.R
├── data
│   └── README.md
│       └── raw
└── docs
    ├── changelog.txt
    ├── manuscript.Rmd
    └── notebook.Rmd
├── my_project.Rproj
└── requirements.txt
└── results
    ├── figures
    ├── manuscript
    └── tables
```

BONUS: RMarkdown Template



goodenuffR also comes with a rmarkdown template:





Thank you!

Feedback to

- [@mjfrigaard](#) on Github and Twitter
- [mjfrigaard\(at\)pm.me](mailto:mjfrigaard(at)pm.me) email